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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--------------------------|-------------|----------------------|---------------------|------------------|
| 09/868,241 | 08/28/2001 | Timothy M Coker | 124-861 | 7076 |
| 23117 | 7590 | 07/26/2004 | EXAMINER | |
| NIXON & VANDERHYE, PC | | | DINH, DUC Q | |
| 1100 N GLEBE ROAD | | | ART UNIT | |
| 8TH FLOOR | | | PAPER NUMBER | |
| ARLINGTON, VA 22201-4714 | | | 2674 | |
| DATE MAILED: 07/26/2004 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/868,241 | COKER ET AL. | |
| | Examiner | Art Unit | |
| | DUC Q DINH | 2674 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 28 April 2004.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-3,5,6 and 12-15 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) 1-3,5 and 6 is/are allowed.

6) Claim(s) 12-15 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. _____.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

1. In view of the Appeal Brief filed on 4/28/04, PROSECUTION IS HEREBY REOPENED. A Non Final Office Action is provided as set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

- (1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,
- (2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Claim Objections

2. Claims 1 and 2 are objected to because of the following informalities:

Claim 1:

Line 1, "Light modulating apparatus comprising:" should read "A light modulating apparatus comprising."

Claim 2:

Line 1, "Light modulating apparatus comprising:" should read "A light modulating apparatus comprising."

It is in the best interest of the patent community that applicant, in his/her normal review and/or rewriting of the claims, to take into consideration these editorial situations and make changes as necessary.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 recites a method of image signal processing for a weighted bit plane technique, in which an image signal represents a set of n-digit binary number signals each indicative of the intended intensity level of a respective one of a corresponding array of binary pixels, wherein at least one said binary number has an inequality of 1s and 0s, wherein said method comprises the step of altering said at least one binary number to a closely adjacent value to at least reduce said inequality therein and so that any inequality of 1s and 0s in each of the rest of said set of numbers is left unchanged, reduced or removed

It is noticed claim 12 recited a method of image signal processing in which an image signal is represents as a set of n-binary number signal and at least one said n-digit binary number has an inequality of 1s and 0s, wherein said method comprises the step of altering said at least one n-digit binary number. If one binary digit number in the set of binary-digit numbers is altered, how the inequality of 1s and 0s in each of the rest of said set of numbers is reduced or removed?

Similarity, claim 13 recited a method of writing and displaying an image in response to an image signal representing a set of n-digit binary numbers each indicative of the intended intensity level of a respective one of a corresponding array of binary pixels, a complete image being written using a weighted bit plane technique, the method comprising the step that at least one said binary number is altered to a closely adjacent value such that over the writing of said complete image an inequality of 1s and 0s at the corresponding pixel is at least reduced and so that any inequality of 1s and 0s at pixels for each of the rest of the said set of numbers is left unchanged, reduced or removed

It is notice that claim 13 recited the limitation "one said binary number is altered to a closely adjacent value", (**the rest of said set of numbers is not altered**). **How the rest of said set numbers can be reduced or removed the inequalities of 0s and 1s**, instead they can only be left unchanged.

Furthermore, claim 14 recites a method of writing and displaying an image in response to an image signal representing a set of n-digit binary numbers each indicative of the intended intensity level of a respective one of a corresponding array of binary pixels, using a weighted bit plane technique, wherein at least one binary number produces an inequality of 1s and 0s at its pixel over the writing of a complete image, wherein said method comprises the steps of:

writing a plurality of images each approximating said complete image in succession; and

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altering said at least one binary number to a closely adjacent value in at least one of said plurality of images so that over said succession the said inequality of 1s and 0s is at least reduced and any inequality of 1s and 0s at each of the other pixels is left unchanged, ~~reduced or removed~~.

It is noticed that claim 14 recites “altering said at least one binary number (of the **set of n-binary numbers**) to a closely adjacent value”. How the inequality of 1s and 0s at each of the other pixels (in the set of n-binary numbers) is reduced or removed, instead they can only left unchanged.

Allowable Subject Matter

4. Claims 1-3 and 5-6 are allowed.

5. The following is a statement of reasons for the indication of allowable subject matter:

None of the cited prior arts teaches or suggests:

Light modulating apparatus comprising:
an array of light modulating pixels; and
drive means adapted to drive the array to write a complete image by a weighted bit plane technique in response to an image signal representing a set of n-digit binary numbers defining the intended intensities of respective pixels of the array, n being an integer greater than one, wherein the pixels are liquid crystal pixels, and the driving means is arranged to alter the n-digit number in respect of at least one said pixel to a closely adjacent value so that the numbers of 1s and 0s written thereat over said writing of a complete image are brought closer to equality thereby improving the do balance (claim 1). OR

Light modulating apparatus comprising:

an array of light modulating pixels; and
drive means adapted to drive the array to write a complete image by a weighted bit plane technique in response to an image signal representing a set of n-digit binary numbers defining the intended intensities of respective pixels of the array, n being an integer greater than one, wherein the pixels are liquid crystal pixels, and over a plurality of successive complete images the driving means is arranged to alter the n-digit number in respect of at least one said pixel in at least one said complete image to a closely adjacent value so that the numbers of 1s and 0s written at said at least one said pixel over the plurality of images are brought closer to equality thereby improving the dc balance (claim 2).

Response to Arguments

6. Applicant's arguments, see page 7-16 of the Appeal Brief, filed April 8, 2004, with respect to claims 1-3, 6 and 12-15 have been fully considered and are persuasive. Therefore, the Final Rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made as above.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **DUC Q DINH** whose telephone number is **(703) 306-5412**. The examiner can normally be reached on Mon-Fri from 8:00.AM-4:00.PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **RICHARD A HJERPE** can be reached on **(703) 305-4709**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

Or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivery response should be brought to: Crystal Park II, 2121 Crystal Drive,
Arlington, Va Sixth Floor (Receptionist)

Any inquiry of a general nature or relating to the status of this application or proceeding
should be directed to the Technology Center 2600 Customer Service Office whose telephone
number is **(703) 306-0377**.

DUC Q DINH
Examiner
Art Unit 2674

DQD
July 23, 2004


REGINA LIANG
PRIMARY EXAMINER